**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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| In re Patent Application of | **MAIL STOP AF** |
| Shigeru Yano et al. | Group Art Unit: 1771 |
| Application No.: 09/913,725 | Examiner: HAI VO |
| Filed: August 17, 2001 | Confirmation No.: 3808 |
| For: POROUS FILM AND MANUFACTURING METHOD THEREOF | |

## REPLY BRIEF

**Mail Stop Reply Brief**
Commissioner for Patents
P.O. Box 1450
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Sir:

This Reply Brief is in response to the Examiner's Answer mailed August 25, 2004, in the above-identified application.

Appellants respectfully submit that the Examiner committed reversible error for at least the following reasons:

1. Formulating an art rejection that does not establish a *prima facie* case of obviousness because there is a lack of motivation in the cited prior art to combine the teachings thereof to arrive at the present invention; and

2. failing to conclude that evidence in the specification that the presently claimed invention provides unexpected results. Each of these will be discussed.

In formulating a rejection under 35 U.S.C. §103, the references relied upon must suggest the desirability of combining their respective disclosures, they must be

viewed without the benefit of hindsight, and there must be a reasonable expectation of success. These criteria have not been followed by the Examiner.

It is the Examiner's position that since the Takayama reference (U.S. Patent No. 6,284,828) discloses using liquid ethylene/α-olefin oligomers to improve dispersibility and processability of the components of the polyacetal compositions disclosed therein, "there are no reasons why such a lubricant could not have been used in combination with the porous film for the improvement of the dispersibility and processability of the film" (Answer, page 6, lines 10-12). This is tantamount to an obvious-to-try argument, i.e. if the liquid oligomer acts as a lubricant in a composition containing a polyolefin (such as Takayama '828), it would have been obvious to try it as a lubricant in any polyolefin-containing composition. Clearly, this is an improper approach.

Moreover, the Examiner's argument is not correct that the lubricants in Takayama '828 are designed not only to improve friction and abrasion resistance of molded polyacetal resin compositions but also to improve the dispersibility, molding processabilities of the composition. The reference discloses that since polyacetal resins have well-balanced mechanical properties and are excellent in, for example, friction resistance and abrasion resistance properties, chemical resistance, heat resistance and electric characteristics, they have been widely used in fields such as automobiles and electrical and electronic appliances (col. 1, lines 17-22). Also, Takayama '828 further discloses that, in general, addition of a fluororesin or a polyolefinic resin, or a lubricant such as fatty acids, fatty acid esters, silicon oils or various mineral oils, to polyacetal resins is effected for the purpose of the improvement of the sliding performances (col. 1, lines 51-55). However, the addition

of a lubricant has disadvantages such as trouble during processing in extrusion or molding, or bleeding during use. When used together with the above-mentioned resins other than the polyacetal resins, the lubricant inhibits the compatibility between these resins and the polyacetal resins and greatly deteriorates the abrasion resistance properties (col. 1, line 66 to col. 2, line 5). Thus, Takayama '828 teaches those skilled in the art that the prior art addition of lubricant inhibits the compatibility between fluororesin or polyolefinic resin and the polyacetal resins.

Takayama '828 further discloses that, to attain the above objects, it has been found that a resin composition having excellent sliding performances can be obtained by blending a polyacetal resin (component (A)) with a specific polyolefinic polymer (component (B)), an alkylene glycol polymer (component (C)) and an inorganic filler (component (D)) optionally together with, further, a particular lubricant (component (E)) (col. 2, lines 10-16). The dispersibility of component (B) into the polyacetal resins is improved by the incorporation of compound (C) (col. 4, lines 52-54). Accordingly, the invention of Takayama '828 is to blend the alkylene glycol polymer (component (C)) into the polyacetal resin (A) with the polyolefinic polymer (component (B)) in order to improve dispersibility between the polyacetal resin (component (A)) and the polyolefinic polymer (component (B)) and thereby improve abrasion resistance properties.

Addition of a lubricant (component (E)) to the polyacetal resin composition is optional. Takayama '828 discloses that, although the composition of his invention exhibits excellent properties, excellent effects in sliding performances and molding processabilities, etc., "enhanced effects" can be obtained by further using a lubricant (E) in addition to the above-mentioned components (A) to (D) (col. 5, lines 23-32).

However, there is nothing disclosed in Takayama '828 which suggests that the presence of the lubricant has any beneficial effects on the polyolefin resin component of the invention.

Appellant disagrees with the Examiner's argument that the ethylene/α-olefin oligomer apparently provides no technical advantage or improvement over other lubricants in attaining the requisite properties desired in porous polyolefin film. The object of the present invention is to provide a porous film having excellent moisture permeability, flexibility and exudation resistance, as well as to provide a manufacturing method capable of high speed film formation and stretching of the porous film having the characteristics described above (page 3, lines 19-24 of the specification).

When the ethylene/α-olefin oligomer was used as a lubricant in Examples 1-7, the uniformness of thickness of the porous film ranged from 0.06 to 0.1. On the other hand, when liquid paraffin (a lubricant disclosed as suitable by Takayama '828) was used as a lubricant in Comparative Example 6, the uniformness of thickness of the porous film is 0.16. Therefore, the liquid paraffin adversely impacted the properties of the porous film in terms of uniformness of thickness.

Further, in Comparative Example 1, caster oil (a conventional ester lubricant) was used and the porous film made therefrom had a moisture permeability, uniformness and ration ($S_T/T_H$) of rigidity relative to thickness of the porous film within the claimed range. However, ratio ($T_S/T_H$) and ratio ($T_E/T_H$) relative to exudation resistance were outside the claimed range and overall evaluation of the porous film was X (unsatisfactory). Therefore, castor oil (main component: ricinoleic acid triglyceride), i.e., a fatty acid ester of the type indicated as a suitable lubricant in

Takayama '828, was unsuitable as a lubricant for the porous film of the present invention.

Accordingly, there was no reasonable expectation that using the ethylene/α-oligomer disclosed in Takayama '828 in the compositions of JP '305 would be successful.

For the reasons set forth in the Appeal Brief and those presented herein, Appellants respectfully request the Board of Appeals and Interferences render a decision reversing the Examiner's rejection.

Respectfully submitted,

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Date: October 21, 2004

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